

IN THE SPECIFICATION:

Paragraph beginning at line 3 of page 1 has been amended as follows:

The present invention relates to a piezoelectric motor, a stage equipped with the piezoelectric motor, and an electronic apparatus ~~equipment and stage equipped with the~~ piezoelectric motor.

Paragraph beginning at line 6 of page 1 has been amended as follows:

In recent years, as means for achieving an ultraprecise positioning, ~~attention is reverted in each field~~ has been given in various fields to the piezoelectric motor, ~~so-called~~ also called an ultrasonic motor, for friction-driving a movable body contacting with a vibrating body having a piezoelectric element by vibration of the vibrating body. Especially, a piezoelectric motor ~~one~~ utilizing ~~the~~ as a vibrating body ~~of~~ a rectangular plate is widely used in various ~~expected in its application in wide~~ fields as a linear motor.

Paragraph beginning at line 14 of page 1 has been amended as follows:

As a method of supporting the vibrating body ~~of~~ in the form of a rectangular plate, as shown in Fig. 15, there is known a structure in which surroundings of rectangular plate vibrating bodies 100 comprising the piezoelectric elements are supported so as to be interposed by an elastic member 101 (for example, Patent Document 1).

Paragraph beginning at line 11 of page 2 has been amended as follows:

Further, there is an example in which ~~it is~~ vibrating bodies are supported by mutual engagement of members ~~such as~~ made of metal, for example, without using the elastic body, but also in this case there is a fear that the similar result is brought about in the engaging portion if there is a play.

Paragraph beginning at line 14 of page 6 has been amended as follows:

A 14th mode of the invention exists in an electronic equipment ~~with piezoelectric motor, which has~~ or apparatus having the piezoelectric motor according to any one of the modes 1 - 13, ~~and has~~ a transmission mechanism operating monolithically with a movable body, and an output mechanism

operating on the basis of an operation of the transmission mechanism.

Paragraph beginning at line 2 of page 7 has been amended as follows:

~~Fig. 1 is a view~~ Figs. 1A-1E are views showing a support structure of a piezoelectric motor according to an embodiment 1 of the present invention;

Paragraph beginning at line 5 of page 7 has been amended as follows:

~~Fig. 2 is a view showing other~~ Figs. 2A-2B are views showing another example of the support structure of the piezoelectric motor according to the embodiment 1 of the invention;

Paragraph beginning at line 8 of page 7 has been amended as follows:

~~Fig. 3 is a view showing other~~ Figs. 3A-3E are views showing another example of the support structure of the piezoelectric motor according to the embodiment 1 of the invention;

Paragraph beginning at line 11 of page 7 has been amended as follows:

~~Fig. 4 is a view~~ Figs. 4A-4B are views showing ~~other~~ another example of the support structure of the piezoelectric motor according to the embodiment 1 of the invention;

Paragraph beginning at line 14 of page 7 has been amended as follows:

~~Fig. 5 is a view showing a~~ Figs. 5A-5B are views showing another support structure of the piezoelectric motor according to an embodiment 2 of the invention;

Paragraph beginning at line 17 of page 7 has been amended as follows:

~~Fig. 6 is a view showing other~~ Figs. 6A-6B are views showing another example of the support structure of the piezoelectric motor according to the embodiment 2 of the invention;

Paragraph beginning at line 20 of page 7 has been amended as follows:

~~Fig. 7 is a view~~ Figs. 7A-7B are views showing a vibrating body peripheral portion of the piezoelectric motor according to an embodiment 3 of the invention;

Paragraph beginning at line 23 of page 7 has been amended as follows:

~~Fig. 8 is a view~~ Figs. 8A-8C are views showing an example of the support member of the piezoelectric motor according to the embodiment 3 of the invention;

Paragraph beginning at line 2 of page 8 has been amended as follows:

Fig. 9 is a view showing ~~ether~~ another example of a support structure of the piezoelectric motor according to the embodiment 3 of the invention;

Paragraph beginning at line 5 of page 8 has been amended as follows:

~~Fig. 10 is a view~~ Figs. 10A-10B are views showing a support structure of the piezoelectric motor according to an embodiment 4 of the invention;

Paragraph beginning at line 8 of page 8 has been amended as follows:

~~Fig. 11 is a view showing ether~~ Figs. 11A-11B are views showing another example of the support member of the piezoelectric motor according to the embodiment 4 of the invention;

Paragraph beginning at line 11 of page 8 has been amended as follows:

~~Fig. 1 is a view~~ Figs. 12A-12B are views showing the support member of the piezoelectric motor according to an embodiment 5 of the invention and an example of application to an electronic equipment;

Paragraph beginning at line 14 of page 8 has been amended as follows:

~~Fig. 13 is a view~~ Figs. 13A-13B are views showing the support member of the piezoelectric motor according to the embodiment 5 of the invention and other example of application to the electronic equipment;

Heading at line 22 of page 8 has been amended as follows:

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS
INVENTION

Paragraph beginning at line 23 of page 9 has been amended as follows:

Here as shown in Fig. 1B, in an upper face of the vibrating body 1, two semi-spherical concave portions 1a are provided in the vicinities of points located in node portions of the vibration. ~~And, from~~ From above of the vibrating body 1, there are provided pin-shaped support members 2 having at

their tips two semi-spherical convex portions engaging with the concave portions 1a. As shown in Fig. 1E, the support member 2 is guided by a guide member 4, and becomes movable only in a contact pressure direction between the friction members 3 provided in the ~~moving~~ vibrating body 1 and the contact member 5. For example, by applying a pressurization to one end of the support member 2, a contact pressure acts between the friction member 3 and the contact member 5. On this occasion, the vibrating body 1 follows such that the contact between the friction member 3 and the contact member 5 becomes good, but a movement in other direction is regulated. Accordingly, there can be realized a piezoelectric motor which is high in its efficiency and excellent in its durability and whose positioning resolving power is high.

Paragraph beginning at line 16 of page 10 has been amended as follows:

As the friction member 3 there are used, for example, an engineering plastic obtaining carbon fibers, a ceramics such as alumina and a hard metal such as stainless steel, and as the contact member there are used ~~the~~ a hard metal such as stainless steel and ~~the~~ ceramics such as alumina.

Paragraph beginning at line 21 of page 10 has been amended as follows:

A modified example of the embodiment 1 is explained using Fig. 2A and Fig. 2B. Although as shown in Figs. 2A and 2B, the vibrating body 1 is similar to one of Fig. 1, the vibrating body 1 is provided with two hemispherical convex portions 1b in place of the hemispherical concave portion. ~~And, a~~ A support member 6 is made monolithic and bifurcated midway, and has two hemispherical concave portions provided ~~in~~ at its tips and engaging with the convex portions 1b. According to ~~his~~, similarly to the constitution of Fig. 1, a stable contact state is obtained between the vibrating body and the contact member, and the vibrating body is constrained in its movement in other ~~direction~~ directions.

Paragraph beginning at line 7 of page 11 has been amended as follows:

Fig. 3 shows ~~the~~ a piezoelectric motor ~~of other~~ according to another of the embodiment 1. Especially, Fig. 3C and Fig. 3D show the state of vibration amplitude, i.e., distribution of amplitude, with respect to the longitudinal direction of a vibrating body 7.

Paragraph beginning at line 3 of page 12 has been amended as follows:

Here as shown in Fig. 3A, in the vicinity of a point located in the node of the bending vibration of the vibrating body, there ~~is~~ provided a receiving ~~member~~ members 10 each having ~~two~~ a semi-spherical concave ~~portions~~ portion 10a. ~~And, from~~ From above of the vibrating body 7, there are provided pin-shaped support members 9 having at their tips two semi-spherical convex portions 9a engaging with the concave portions 10a. As shown in Fig. 3E, ~~a~~ each of the support ~~member~~ members 9 is guided by ~~the~~ a guide member 4, and becomes movable only in a contact pressure direction between the vibrating body 7 or the friction members 8 provided in the vibrating body 7 and the contact member 5. In Fig. 3E, for example, by providing a spring member 11 between the guide member 4 and the receiving member 10, a contact pressure acts between the friction member 8 and a contact member 5. On this occasion, the vibrating body 7 follows such that the contact between the friction member 8 and the contact member 5 becomes good, but a movement in other ~~direction~~ directions is regulated.

Paragraph beginning at line 14 of page 14 has been amended as follows:

~~It is explained about the embodiment~~ Embodiment 2 of the invention is described below on the basis of Fig. 5 and Fig. 6.

Paragraph beginning at line 8 of page 16 has been amended as follows:

~~It is explained about the embodiment~~ Embodiment 3 of the invention is described below by using Fig. 7, Fig. 8 and Fig. 9. The vibrating bodies 7 and 20 are ones similar to one shown in Fig. 3. In Fig. 7A, a receiving member 21 having a V-groove 21a is bonded in the vicinity of a position corresponding to the node of the vibration. For the receiving member 21, a metal and the like may be used, but it is preferable to use, for example, ~~the~~ an engineering plastic, plastic etc. ~~greatly different in their~~ which differs greatly in acoustic impedance, elastic modulus and the like from the vibrating body 7. As shown in Fig. 8, a support member 22 engages with a the V-groove 21a of the receiving member 21. The support member 22 is provided with a deformed portion 22b, is guided by a guide member (not shown), and it is adapted such that the vibrating body 7 is supported and the pressurization force is applied similarly to the embodiment 1. Further, since the support member 22 is engaged with the

V-groove 21a of the receiving member 21, it is stably supported without the play. A motion of the vibrating body 7 in a width direction is obtained by a friction force between the support member 22 and the receiving member 21, but a stopper 22a is provided for caution's sake. Further, it is preferable to perform a selection of a material, etc. such that friction force between the support member 22 and the receiving member 21 becomes larger than a friction force between the friction member 12 and the contact member 5. As a shape of the support member, there are considered one having a V-groove 24a in a support member 24 like Fig. 3Cm 8C, one provided like Fig. 8B with a columnar stopper 23a in place of the stopper 22a in Fig. 8A, or a combination of these, and the like. However, like Fig. 8B, in case where the support member 23 is used, it is necessary to bore in the receiving member 21 a hole in which the stopper 23a is accommodated. Further, a support member 23 is provided with a deformed portion 23b, is guided by a guide member (not pressurization force similarly to the embodiment 1. Similarly, the support member 24 is provided with a deformed portion 24b, is guided by a guide member (not shown), it supports the vibrating body 7 and applies the pressurization force similarly to the embodiment 1.